#### Message

From: Hogan, Karen [Hogan.Karen@epa.gov]

Sent: 12/2/2015 2:08:19 PM

To: Cai, Christine [Cai.Christine@epa.gov]

Subject: RE: Modeling to characterize BMD distributions for RPF derivation

OK, thanks!

From: Cai, Christine

Sent: Tuesday, December 01, 2015 9:47 AM To: Hogan, Karen < Hogan. Karen@epa.gov>

Subject: RE: Modeling to characterize BMD distributions for RPF derivation

Hi Karen,

The program I used did not report goodness-of-fit or predicted values for each data point. I am not good with that coding system, and don't want to mess around it. How about asking Maria or other mathematical statisticians on how to do it? Or, if you can get Maria's code or similar code from other mathematical statisticians, I might be able to help. Christine

From: Hogan, Karen

Sent: Monday, November 30, 2015 6:24 PM To: Cai, Christine < Cai. Christine@epa.gov>

Subject: FW: Modeling to characterize BMD distributions for RPF derivation

Hi Christine,

I'm afraid it has taken me a long time to realize I do have a question on one of the datasets you analyzed for me, possibly another. The main one is the AC-LaVoie dataset in your spreadsheet. Ex. 5 Deliberative Process (DP)

### Ex. 5 Deliberative Process (DP)

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More generally, this approach also needs adequate documentation. I wasn't very satisfied with what Leonid gave me, but didn't get very far with working out with him what is needed. I added the observed data to the spreadsheet of yours and Leonid's work, which is when this fit issue became clearer to me. But once this expanded spreadsheet is stored in a more central location, I think it will still be hard for others less familiar to follow. In a different assessment, Maria has provided a table with model predictions for each data point in each nonparametric Bayes model that she fits, which seems useful to me. Is it possible to generate a model prediction for each data point? That would at least help with goodness-of-fit evaluation, even if there isn't a formal procedure. Let me know what you think. Thanks,

Karen

From: Cai, Christine

Sent: Tuesday, November 25, 2014 5:28 PM To: Hogan, Karen < Hogan. Karen@epa.gov> Cc: Pratt, Margaret cratt.margaret@epa.gov>

Subject: RE: Modeling to characterize BMD distributions for RPF derivation

Hi Karen,

Attached is the summary sheet for all Bayesian modeling I have done for endpoints from PAH. The endpoints newly modeled were highlighted in green.

Please feel free to let me know if you have any question or further request.

Happy Thanksgiving!

Christine

From: Hogan, Karen

Sent: Wednesday, November 12, 2014 3:53 PM

To: Cai, Christine

Subject: RE: Modeling to characterize BMD distributions for RPF derivation

I hope not, but I don't know for sure. I have been sending them as I find them.

From: Cai, Christine

Sent: Wednesday, November 12, 2014 12:57 PM

To: Hogan, Karen

Subject: RE: Modeling to characterize BMD distributions for RPF derivation

No problem.

Is that all, or more are coming?

Christine

From: Hogan, Karen

Sent: Wednesday, November 12, 2014 12:51 PM

To: Cai, Christine

Subject: RE: Modeling to characterize BMD distributions for RPF derivation

A third PAH dataset to model:

# Ex. 5 Deliberative Process (DP)

Sorry that I'm identifying them so slowly, but it also isn't urgent at the moment. Just letting you know so you can fit these in as convenient.

Thanks, Karen

From: Hogan, Karen

Sent: Tuesday, November 04, 2014 4:22 PM

To: Cai, Christine

Subject: RE: Modeling to characterize BMD distributions for RPF derivation

Next week is fine. I'm juggling a lot of things and will be off Friday.

From: Cai, Christine

Sent: Tuesday, November 04, 2014 4:14 PM

To: Hogan, Karen

Subject: RE: Modeling to characterize BMD distributions for RPF derivation

No problem and will do. Is next week OK or too late? Thanks, Christine

From: Hogan, Karen

Sent: Tuesday, November 04, 2014 12:39 PM

To: Cai, Christine

Subject: RE: Modeling to characterize BMD distributions for RPF derivation

Now that I've thought about it overnight, please include another timepoint for this dataset, since the one I gave you (from Week 8) is so weak numerically and involves upward extrapolation to 10%.

# Ex. 5 Deliberative Process (DP)

I'll work up the PAH data for Week 9. It will be interesting to see if each timepoint leads to a similar relative potency between the two chemicals.

Thanks, Karen

From: Cai, Christine

Sent: Tuesday, November 04, 2014 12:22 PM

To: Hogan, Karen Cc: Rieth, Susan

Subject: RE: Modeling to characterize BMD distributions for RPF derivation

Hi Karen,

No problem and I will do.

Christine

From: Hogan, Karen

Sent: Monday, November 03, 2014 2:47 PM

**To:** Cai, Christine **Cc:** Rieth, Susan

Subject: RE: Modeling to characterize BMD distributions for RPF derivation

Hi Christine,

Yes, I did overlook one case that needs Bayesian modeling for sure. I don't know if there will be others (still reviewing),

### Ex. 5 Deliberative Process (DP)

The BaP

response is very weak, but the carcinogenicity of BaP is not in question. This is the best-designed study available for this RPF.

Study: Cavalieri et al 1991

PAH: BaP

# Ex. 5 Deliberative Process (DP)

Thanks very much, Karen

From: Cai, Christine

Sent: Tuesday, September 16, 2014 5:21 PM

To: Hogan, Karen

Subject: RE: Modeling to characterize BMD distributions for RPF derivation

Hi Karen,

Are there more data sets from PAH for Bayesian modeling? Somehow I have had the impression that you do, but I could

be wrong. Thanks, Christine

From: Hogan, Karen

Sent: Thursday, August 21, 2014 5:31 PM

To: Cai, Christine

Cc: Pratt, Margaret; Rieth, Susan

Subject: RE: Modeling to characterize BMD distributions for RPF derivation

Thanks again! Have a great vacation,

Karen

From: Cai, Christine

Sent: Thursday, August 21, 2014 5:04 PM

To: Hogan, Karen

Cc: Pratt, Margaret; Rieth, Susan

Subject: RE: Modeling to characterize BMD distributions for RPF derivation

Hi Karen,

Please see the attached spreadsheet, with addition of the two new datasets you have requested yesterday.

Please feel free to let me know if you have any question or when more datasets are ready .

See you all in Sept.!

BR,

Christine

From: Hogan, Karen

Sent: Wednesday, August 20, 2014 11:15 AM

To: Cai, Christine

**Subject:** FW: Modeling to characterize BMD distributions for RPF derivation

Unfortunately the interagency vanadium comments have started coming in and I have to drop PAHs for the time being. If you could work up these 2 data sets (table includes the one I sent yesterday), I think the PAHs assessment will be well set for a while. The contractor has quite a bit of work to do to assemble all of the pieces.

Thanks, Karen

From: Hogan, Karen

Sent: Wednesday, August 20, 2014 8:48 AM

To: Cai, Christine

Subject: RE: Modeling to characterize BMD distributions for RPF derivation

I'm sorry to say that I overlooked another dataset, maybe was too tired yesterday. I'll doublecheck for others before sending it, hopefully after the IRIS mtg.

Thanks, Karen

From: Cai, Christine

Sent: Tuesday, August 19, 2014 5:28 PM

To: Hogan, Karen

Cc: Rieth, Susan; Pratt, Margaret

Subject: RE: Modeling to characterize BMD distributions for RPF derivation

No problem. Christine

From: Hogan, Karen

Sent: Tuesday, August 19, 2014 5:20 PM

To: Cai, Christine

Cc: Rieth, Susan; Pratt, Margaret

Subject: RE: Modeling to characterize BMD distributions for RPF derivation

Hi Christine,

Here is the last dataset—just one! Thanks for bearing with me,

Karen

From: Cai, Christine

Sent: Tuesday, August 19, 2014 3:44 PM

To: Hogan, Karen

Cc: Rieth, Susan; Pratt, Margaret

Subject: RE: Modeling to characterize BMD distributions for RPF derivation

Hi Karen,

Attached is the Bayesian modeling results with RWinBUGs.

Please feel free to let me know if you have any question or more request.

BR, Christine

From: Hogan, Karen

Sent: Tuesday, August 12, 2014 5:58 PM

To: Cai, Christine

Cc: Rieth, Susan; Pratt, Margaret

Subject: RE: Modeling to characterize BMD distributions for RPF derivation

Hi Christine,

Here is hopefully the last batch of datasets, six of them, for Bayesian modeling. There is a slim possibility that another could crop up if I haven't checked things over thoroughly enough. Keeping my fingers crossed...

Thanks very much,

Karen